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CONSULTING ENGINEERS
Civil, Transportation, Environmental,
Construction Management

October 15, 2013

Mr. Vincent N. Jacob, P.E.
Managing Engineer
Isani Consultants, L.P.
3143 Yellowstone Blvd.
Houston, TX 77054

Re: Water Line Replacement in Shepherd Forest II Area
WBS Number S-000035-0192-4;
Contract Number 4600011854

Dear Mr. Jacob:

OTHON, INC., Consulting Engineers is pleased to submit the enclosed one bound and one unbound copies of the Final Report on the Phase II Environmental Site Assessment for the Water Line Replacement in the Shepherd Forest II Area.

Please contact me if you or the City of Houston should have any questions or comments in regard to the enclosed report.

Sincerely,

Truman E Louderback

Truman E. Louderback
Project Manager

Enclosure

PHASE II
ENVIRONMENTAL SITE ASSESSMENT REPORT

WATER LINE REPLACEMENT IN SHEPHERD FOREST II AREA
HOUSTON, HARRIS COUNTY, TEXAS

WBS NO. S-000035-0192-4

ESTABLISHED 1959

PREPARED FOR:

OTHON, INC. CONSULTING ENGINEERS
HOUSTON, TEXAS

BY:

ASSOCIATED TESTING LABORATORIES, INC.
HOUSTON, TEXAS

REPORT NO: E13-112
SEPTEMBER 2013

September 23, 2013

OTHON, INC. CONSULTING ENGINEERS
ATTN: MR. TRUMAN E. LOUDERBACK
11111 WILCREST DRIVE, SUITE 128
HOUSTON, TEXAS 77042

RE: ***PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT***
WATER LINE REPLACEMENT IN SHEPHERD FOREST II AREA
WBS NO. S-000035-0192-4
HOUSTON, TEXAS
ATL REPORT NO.: E13-112

Mr. Louderback:

Associated Testing Laboratories (ATL) is pleased to submit the following Phase II ESA report for the above-mentioned project.

Thank you for considering ATL for this project. We appreciate the opportunity to conduct environmental service for this project and are looking forward to serving you again on future projects. The following provides a brief summary of the Phase II ESA results:

EXECUTIVE SUMMARY

ATL performed a Limited Phase II Environmental Site Assessment (ESA) for the Water Line Replacement in Shepherd Forest II Area project in Houston, Texas. Please refer to Figures for the location and site details. The following is reported:

- Six (6) environmental soil borings were completed to a depth of 15 feet at the two (2) sites of Recognized Environmental Conditions (RECs). Soil samples were screened utilizing a MiniRAE Photo Ionization Detector (PID) instrument in the field. PID readings and visual inspection directed the submittal of soil samples and the sample with the greatest PID reading was submitted from each soil boring, and one soil sample was selected from each of the boring. In the event of no significant PID readings, default soil samples were collected from various representative depths

and submitted for laboratory analyses. Soil samples were analyzed for total petroleum hydrocarbons (TPH) and methyl tert-butyl ether/benzene, toluene, ethyl-benzene and total xylenes (MTBE/BTEX).

- With the exception of soil boring SB-5, groundwater was not encountered in the majority of the soil borings to 15 feet below ground surface (bgs). The limited water-bearing zone encountered in SB-5 at 12 feet was not sufficient for sampling purposes.

The following provides a summary of the soil laboratory analytical results for the two (2) REC locations:

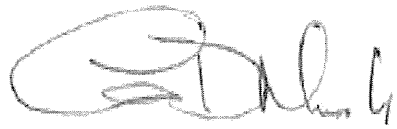
- Individual MTBE/BTEX constituents TPH concentrations were below the sample detection limit at the REC locations. Based on the laboratory analytical results, no soil concentrations exceed TCEQ TRRP Total Soil Combined ($^{Tot}Soil_{Comb}$) or Groundwater Soil Protective ($^{GW}Soil_{Ing}$) PCLs Protective Concentration Levels (PCLs) for a 0.5-acre residential use and are not a concern to construction workers.

RECOMMENDATIONS

ATL performed a Limited Phase II Environmental Site Assessment (ESA) for the Water Line Replacement in Shepherd Forest II Area project in Houston, Texas. Based on field observations and soil laboratory analytical results, the following is noted:

- Soil conditions are not a concern to construction workers. Based on the laboratory analytical results and PID readings, no air monitoring is required at the REC locations. Additionally, no special handling practices are required. Based on the Phase II ESA results, additional environmental investigation work is not warranted.

Regards,



Tom Murphy
Environmental Project Manager

Attachment

TABLE OF CONTENTS

1.0 INTRODUCTION

Public water lines are to be replaced in Shepherd Forest II Area project. The water line replacement project is located north of the North Loop West (IH 610) near the southwest and southeast corners of North Shepherd Drive and West 34th Street in Houston, Texas. Phase II ESA activities occurred at two locations along the proposed water line alignment. Location maps (Key Map©® and United States Geological Survey Topographic Map), FIGURE 1A and 1B identify the investigated areas (RECs) and are presented in Figures of this report.

2.0 SCOPE-OF-WORK

Associated Testing Laboratories (ATL) was retained by Othon, Inc. Consulting Engineers to evaluate whether the project alignment has been affected by two leaking petroleum storage tank (LPST) facilities/historical gasoline service stations. The LPST facilities at the project alignment and are as follows (REC locations):

1. CVS/former gasoline service station and LPST facility (3209 N. Shepherd Dr.)
2. Old gasoline service station and LPST facility (3210 N. Shepherd Dr.)

Sampling and analyses was conducted to determine whether petroleum contamination is present at the REC locations. The following Phase II Assessment activities were performed:

- Conducted an investigation of facilities with the potential for environmental conditions as identified in a previously conducted Phase I ESA for the project alignment.
- Completed Texas Excavation Safety (Texas 811) notification.
- Soil sampling locations placed at equidistant locations to provide adequate coverage of the REC locations. Submitted soil samples for laboratory analytical testing based upon field observations (visual and olfactory) and field screening.
- Conducted continuous field screening of soil cores at 2.0-foot intervals utilizing a photo-ionization detector (PID) calibrated to 100 ppm isobutylene standard.
- Completed 6 soil borings at the project alignment.
- Submitted soil samples for laboratory analyses of methyl tert-butyl ether/benzene, toluene, ethyl-benzene and total xylenes (MTBE/BTEX) and total petroleum hydrocarbons (TPH).
- Detailed site assessment activities, reviewed laboratory analytical results and presented the results and conclusions in a Limited Phase II ESA investigation report.

3.0 PHASE II ASSESSMENT ACTIVITIES

On September 6th, 2013, ATL completed six soil borings, SB-1 through SB-6 at select locations along the project alignment. The soil borings were completed to a depth of 15 feet below ground surface (bgs).

Soil borings were advanced utilizing a truck-mounted hydraulically-driven drilling rig with 4-foot stainless split spoons. Soil samples were continuously collected at 2-foot intervals and field screened utilizing a photo-ionization detector (PID). PID field screenings were considered non-detect and ranged from 0.0 ppm to 0.3 ppm. Geologic stratigraphy (lithology) and subsurface characteristics were recorded by the field geologist. FIGURE 2 provides investigated site details and soil boring locations. Soil boring logs are presented in APPENDIX A.

Prior to the initial soil boring and between each 4-foot advancement, all sampling devices were thoroughly cleaned and decontaminated using a hospital grade detergent, water and distilled water. Soil samples were obtained by personnel utilizing appropriate sampling tools and wearing clean, disposable gloves. Disposable nitrile gloves were changed between each sample collection. Two discrete (grab) samples were collected from each 2-foot interval of the soil borings. One sample was placed in a disposable bag for headspace screening. The second soil sample was placed in 4-ounce sterile glass container equipped with a Teflon-lined lid furnished by the testing laboratory. Each container was filled to capacity with soil to limit the amount of headspace present. All samples were labeled in the field and stored at approximately 4°C prior to submission to A & B Laboratories in Houston, Texas for laboratory analyses. Chain-of-custody documentation accompanied the samples in accordance with standard quality assurance and quality control measures.

3.1 SOIL SAMPLING (3209 North Shepherd Drive)

Three soil borings, SB-1, SB-2 and SB-3 were advanced in Randall Street, west of the 3209 N Shepherd Drive and south of W. 34th Street. The soil borings were completed near the western boundary of former gasoline service station and LPST facility. The property has been redeveloped with a CVS Pharmacy. PID readings were non-detect (0.0 ppm) for the soil boring soil cores. Since field screening detections were not encountered in the soil borings, a default soil sample was submitted from each soil boring. Groundwater was not encountered to 15 feet below ground surface. FIGURE 2 provides site details and soil boring locations.

3.2 SOIL SAMPLING (3210 North Shepherd Drive)

Three soil borings, SB-4, SB-5 and SB-6 were advanced in West 34th Street and Lawrence Street adjoining and adjacent to historical gasoline service station and LPST facility. PID readings were considered non-detect (0.0 ppm to 0.3 ppm). One soil sample was collected from the

greatest PID reading (SB-4) for lab analyses. Default soil samples were collected from SB-5 and SB-6 and submitted for laboratory analyses. FIGURE 2 provides site details and soil boring locations.

The old gasoline service station facility/property is currently a car repair facility. The facility is located at the southeast corner of N. Shepherd Drive and W, 34th Street.

4.0 REGULATORY FRAMEWORK

The Texas Commission on Environmental Quality (TCEQ) administers the Environmental Protection Agency (EPA) regulations and enforcement in Texas. It has additionally established its own standards for environmental compliance. The Texas Risk Reduction Program (TRRP) administered by TCEQ, as provided for in 30 TAC Chapter 350, addresses levels of regulated compounds and allowable levels of such contaminants to protect human health, safety, and the environment. The TCEQ TRRP applies to closures, corrective actions, and remediation efforts subject to the jurisdiction of the TCEQ. The TRRP, whether residential or commercial, contains provisions for Remedy Standard A (no physical controls required) or Remedy Standard B (physical controls required). Implementation of Remedy Standard A or Remedy Standard B is a tiered process, as described in general terms below:

- Tier 1 is a risk-based analysis to derive non site-specific protective concentration limits (PCLs) for complete or reasonably anticipated to be complete exposure pathways. Tier 1 is based on default exposure factors and affected property parameters, and assumes exposure occurs at, above, or below the source area (i.e., no lateral transport) (TCEQ Subchapter D Section 350.75 (b)).
- Tier 2 is a risk-based analysis to derive site-specific PCLs for complete or reasonably anticipated to be completed exposure pathways utilizing site-specific exposure factors, as allowable, and/or affected property parameters and Tier 1 equations. Tier 2 PCLs may also include lateral transport considerations (TCEQ, Subchapter D Section 350.75 (c)).
- Tier 3 is a risk-based analysis to derive site-specific PCLs for complete or reasonably anticipated to be completed exposure pathways. Tier 3 PCLs are based on measured natural attenuation factors and/or natural attenuation factor models/equations other than those provided for Tier 1 or 2; and may also include site-specific exposure factors, as allowable, and/or affected property parameters (TCEQ, Subchapter D Section 350.75 (d)).

The below provided soil PCLs are concentrations which are protective of human health and the environment:

* $^{GW}Soil_{Ing}$ * Groundwater Soil Ingestion ($^{GW}Soil_{Ing}$) is the groundwater protection standard for either residential or commercial use. Concentration in soil is assumed protective of groundwater considering cross-medial contamination of groundwater from contaminated soil. This is the critical PCL for special handling practices of the soil for the project.

* $^{Tot}Soil_{Comb}$ * The Total Soil Combined ($^{Tot}Soil_{Comb}$) PCLs are a combined exposure standard for residential use. The PCL considers cross-media contamination of human ingestion, inhalation and dermal pathways. This is the critical PCL for construction worker exposure concentrations.

TABLE I summarizes the soil laboratory analytical data. *MTBE/BTEX concentrations will be the environmental and exposure consideration of this project. The $^{Tot}Soil_{Comb}$ and $^{GW}GW_{Ing}$ PCLs are the action levels for this project.*

5.0 SOIL LABORATORY ANALYTICAL RESULTS

A total of six soil samples were collected from the six soil borings and soil samples were submitted to a certified laboratory for analyses. The soil samples were analyzed for methyl tert-butyl ether/benzene, toluene, ethyl-benzene and total xylenes (MTBE/BTEX) by EPA Method SW846-8021B and total petroleum hydrocarbons (TPH) by Texas Commission on Environmental Quality (TCEQ) Texas Method 1005. The following details the laboratory methodology:

5.1 LABORATORY ANALYTICAL METHODS

Methyl tert-butyl ether/benzene, toluene, ethyl-benzene, and xylene (MTBE/BTEX) by SW-846 EPA Method 8021B: This laboratory analysis employs a gas chromatograph (GC) equipped with a photoionization detector and/or electrolytic conductivity detectors to detect and quantify certain regulated, volatile organic compounds in a soil or water sample. Compounds on this list include certain chlorinated solvents used in dry cleaning and printing processes, refined petroleum products such as gasoline and diesel, and others. This method can also be used to test for MTBE/BTEX compounds, which are a portion of the entire VOA list. These compounds are common components of most formulated gasolines, and their presence is a reliable indicator that a gasoline release has occurred.

Total Petroleum Hydrocarbons (TPH) by TCEQ Method 1005: This laboratory analysis utilizes a GC equipped with a flame ionization detector (FID) to quantify levels of petroleum compounds or derivatives in the range from C6 to C28, in a soil or groundwater medium. Results are

reported in two to three distinct ranges, from C6 to C12, C12 to C28 and C28 to C35. This allows some interpretation as to the possible source of the release, based upon the indicated carbon range. Petroleum hydrocarbons are not necessarily hazardous or toxic. The analysis is designed to determine if TPH is present, and to quantify the level of petroleum hydrocarbons. This analysis is especially useful as a broad category procedure, and may indicate additional testing for the specific hazardous or toxic constituents that may be present and contribute to the TPH levels assessed. Some constituents of petroleum hydrocarbons may be hazardous or toxic, high levels of TPH require additional testing of the sample area.

5.2 SOIL LABORATORY ANALYTICAL RESULTS

Soil samples, SB-1 at 10-12 feet, SB-2 at 6-8 feet, SB-3 at 12-14 feet; SB-4 at 12-14 feet, SB-5 at 6-8 feet and SB-6 at 2-4 feet, were submitted for TPH and MTBE/BTEX analyses from the soil borings (6 total). The resulting laboratory analytical data was compared to the TCEQ TRRP Total Soil Combined ($^{Tot}Soil_{Comb}$) Protective Concentration Limits (PCLs) and Groundwater Soil Ingestion ($^{GW}Soil_{Ing}$) PCLs.

5.2.1 LAB ANALYTICAL RESULTS (3209 N. Shepherd Dr.)

Three soil samples, SB-1 at 10-12 feet bgs, SB-2 at 6-8 feet bgs and SB-3 at 12-14 feet bgs, were submitted and analyzed for this location. The following was reported for individual MTBE/BTEX constituents for the soil samples:

- MTBE concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Benzene concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Toluene concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Ethyl-benzene concentrations were determined to be below the sample detection limit (<0.005 mg/kg to <0.006 mg/kg).
- Total xylene concentrations were determined to be below the sample detection limit (<0.002 mg/kg).

The following was reported in the designated carbon ranges for the soil samples:

- TPH carbon ranges C_6-C_{12} were determined to be below the sample detection limit and ranged from 23.7 mg/kg to 26.4 mg/kg.
- TPH carbon ranges C_{12}-C_{28} were determined to be below the sample detection limit and ranged from 20.3 mg/kg to 22.6 mg/kg.

- TPH carbon ranges C_{28}-C_{35} were determined to be below the sample detection limit and ranged from 17.7 mg/kg to 19.7 mg/kg.

Individual MTBE/BTEX constituents were determined to be less than or below the sample detection limit at is location. TPH concentrations were determined to be below the sample detection limit. TABLE I summarizes the laboratory analytical results. A copy of the laboratory analytical results is presented in APPENDIX B. Photographs of some of the field activities are presented in APPENDIX C

5.2.2 LAB ANALYTICAL RESULTS (3210 N. Shepherd Dr.)

Three soil samples, SB-4 at 12-14 feet bgs, SB-5 at 6-8 feet bgs and SB-6 at 2-4 feet bgs, were submitted and analyzed for this location. The following was reported for individual MTBE/BTEX constituents for the soil samples:

- MTBE concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Benzene concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Toluene concentrations were determined to be below the sample detection limit (<0.001 mg/kg).
- Ethyl-benzene concentrations were determined to be below the sample detection limit (<0.006 mg/kg).
- Total xylene concentrations were determined to be below the sample detection limit (<0.002 mg/kg).

The following was reported in the designated carbon ranges for the soil samples:

- TPH carbon ranges C_6-C_{12} were determined to be below the sample detection limit and ranged from 27.2 mg/kg to 27.7 mg/kg.
- TPH carbon ranges C_{12}-C_{28} were determined to be below the sample detection limit and ranged from 23.3 mg/kg to 23.7 mg/kg.
- TPH carbon ranges C_{28}-C_{35} were determined to be below the sample detection limit and ranged from 20.3 mg/kg to 20.7 mg/kg.

Individual MTBE/BTEX constituents and TPH concentrations were determined to be below the sample detection limit at is location.

6.0 AIR MONITORING/WASTE MANAGEMENT PRACTICES

Based on the results of the Phase II ESA, air monitoring is not warranted

at the REC locations. Confined space protocol may still apply depending on construction activities. No "s*pecial handling practices*" of the soil is required.

7.0 CONCLUSIONS

The purpose of the assessment was to determine the absence or presence and concentration levels of petroleum hydrocarbons in soil and/or groundwater. Phase II ESA activities were conducted in accordance with ATL, Inc.'s proposal/workplan dated July 17, 2013. Phase II ESA activities also were conducted in accordance with the ASTM 1903 Standard Practice and the City of Houston criteria. The following was indicated by the laboratory analytical results:

Soil Analytical

Individual MTBE/BTEX constituents TPH concentrations were below the sample detection limit at the REC locations. Based on the laboratory analytical results, no soil concentrations exceed TCEQ TRRP Total Soil Combined ($^{Tot}Soil_{Comb}$) or Groundwater Soil Protective ($^{GW}Soil_{Ing}$) PCLs Protective Concentration Levels (PCLs) for a 0.5-acre residential use and are not a concern to construction workers.

Groundwater

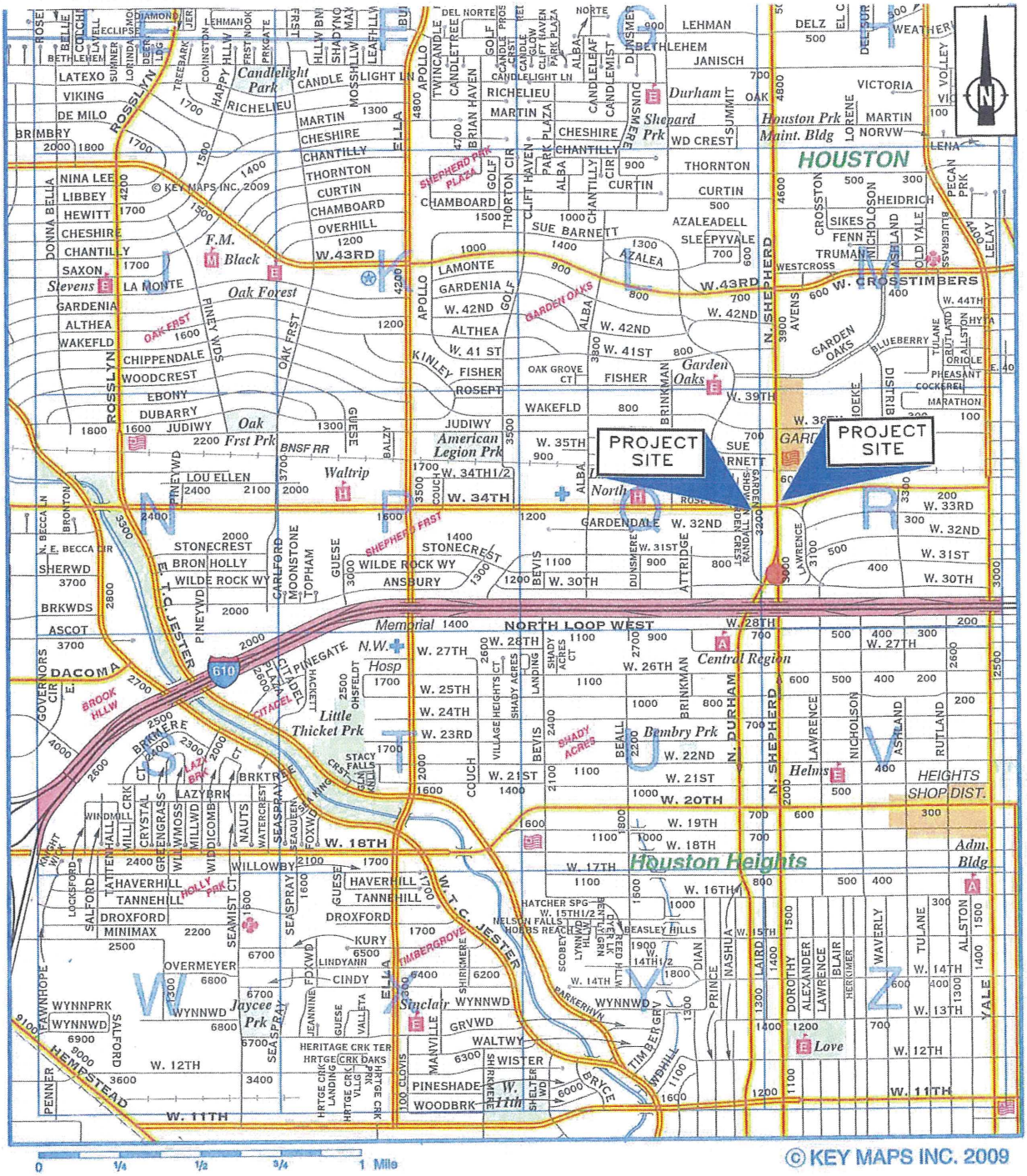
With the exception of soil boring SB-5, groundwater was not encountered in the majority of the soil borings to 15 feet below ground surface (bgs). The limited water-bearing zone encountered in SB-5 at 12 feet was not sufficient for sampling purposes.

8.0 RECOMMENDATIONS

Based on the laboratory analytical results and field observations of the Limited Phase II Environmental Site Assessment for the Water Line Replacement in Shepherd Forest II Area project in Harris County, Texas, the following is noted:

- Soil conditions are not a concern to construction workers. Based on the laboratory analytical results and PID readings, no air monitoring is required at the REC locations. Additionally, no special handling practices are required. Based on the Phase II ESA results, additional environmental investigation work is not warranted.

FIGURES

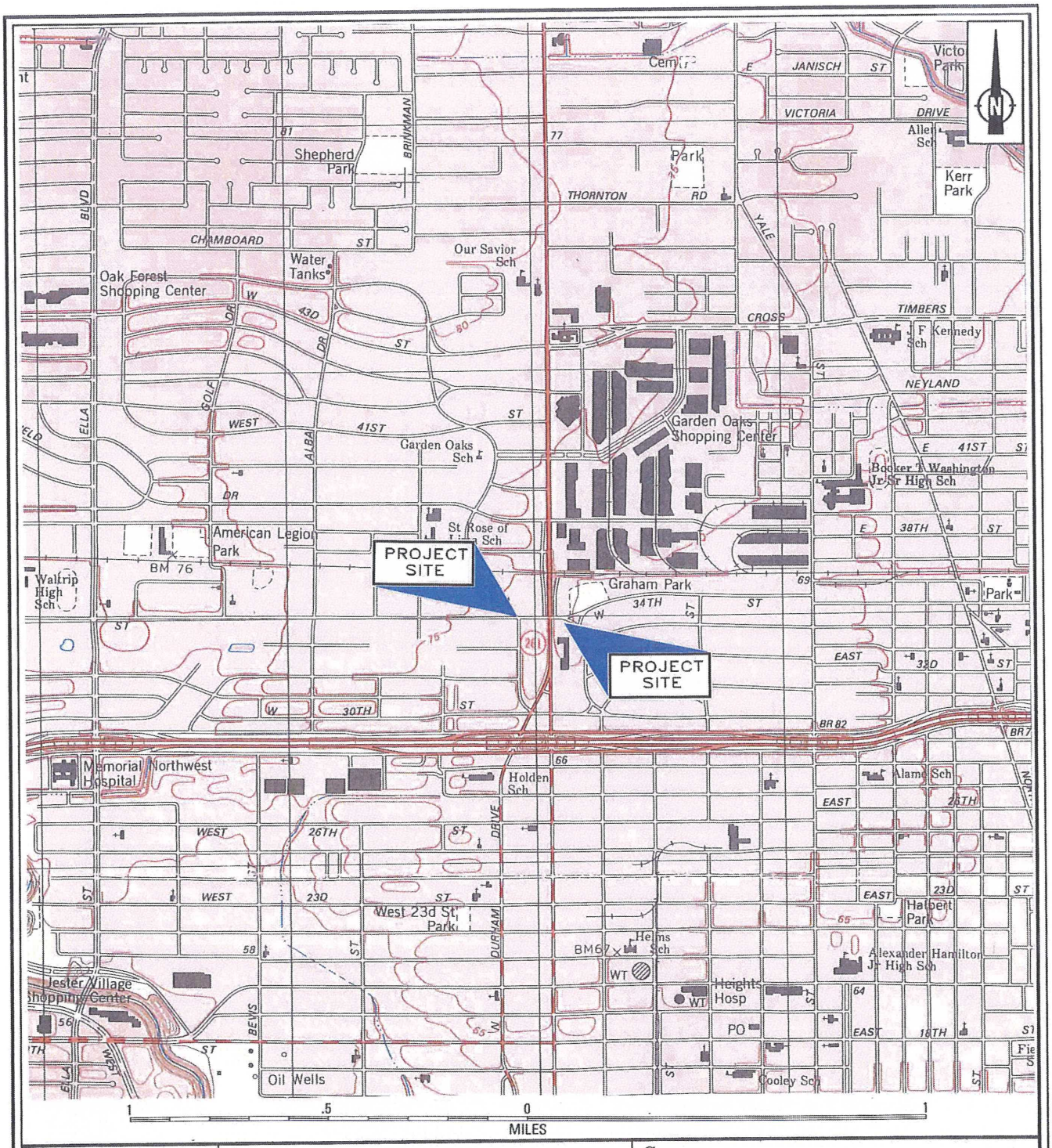


ESTABLISHED 1959

FIGURE 1A
Water Line Replacement in
Shepherd Forest II Area
Houston, Harris County, Texas

WBS No. S-000035-0192-4

Source:
Key Maps, Inc. ©®
Scale:
1 Inch = 2,640 feet / 0.5-Mile
Page 452, Sections Q & R



ESTABLISHED 1959

FIGURE 1B
Water Line Replacement in Shepherd Forest II Area
Houston, Harris County, Texas

WBS No. S-000035-0192-4

Source:
US Department of Interior Geological Survey
USGS Topographic Map
7.5 Minute 1995 Houston Heights Quad.
Scale:
See Above

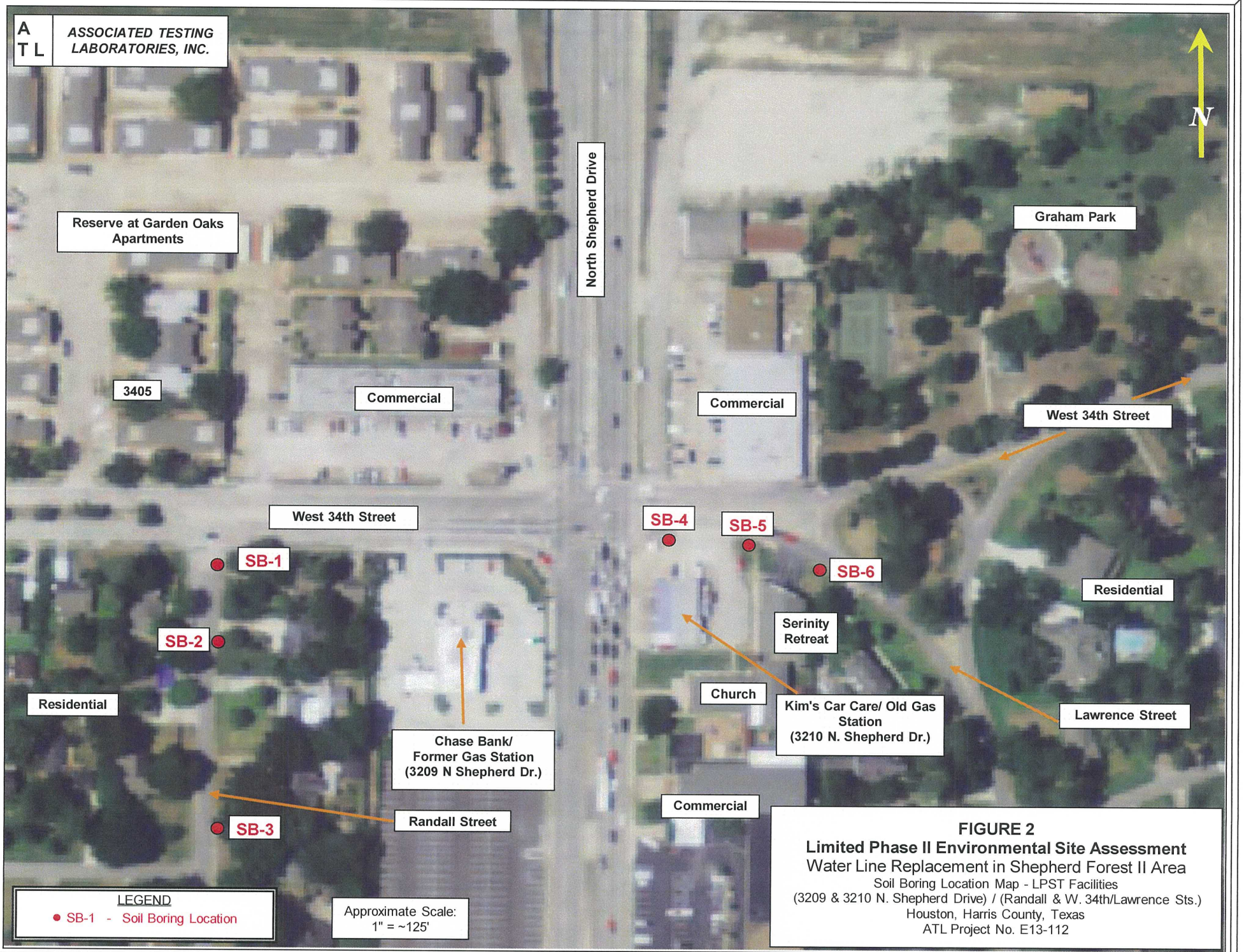


FIGURE 2
Limited Phase II Environmental Site Assessment
Water Line Replacement in Shepherd Forest II Area
Soil Boring Location Map - LPST Facilities
(3209 & 3210 N. Shepherd Drive) / (Randall & W. 34th/Lawrence Sts.)
Houston, Harris County, Texas
ATL Project No. E13-112

TABLE

TABLE I

SUMMARY OF SOIL LABORATORY ANALYTICAL RESULTS - BTEX-MTBE/TPH
WATER LINE REPLACEMENT IN SHEPHERD FOREST II AREA
HOUSTON, HARRIS COUNTY, TEXAS

Sample ID	Date	Depth (feet)	MTBE (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Xylenes (mg/kg)	BTEX (mg/kg)	TPH C6-C12 (mg/kg)	TPH >C12-C28 (mg/kg)	TPH >C28-C35 (mg/kg)	Total TPH (mg/kg)
TRRP Tier 1 PCLs ($^{Tot}Soil_{Comb}$)			**804**	**32.0**	**4,500**	**5,300**	**6,400**	**NA**	**1,600**	**2,300**	**NA**	**NA**
***TRRP Tier 1 PCLs ($^{GW}Soil_{Ing}$)**			**0.621**	**0.026**	**8.20**	**7.80**	**120**	**NA**	**65**	**200**	**NA**	**NA**
SOIL BORING SOIL SAMPLES												
LPST Facility/Randall Street, west of the Chase Bank/former gasoline service station (3209 N. Shepherd Drive)												
SB-1	09/06/13	10-12	<0.001	<0.001	<0.001	<0.006	<0.002	<SDL	<26.4	<22.6	<19.7	<SDL
SB-2	09/06/13	6-8	<0.001	<0.001	<0.001	<0.005	<0.002	<SDL	<26.4	<22.6	<19.7	<SDL
SB-3	09/06/13	12-14	<0.001	<0.001	<0.001	<0.005	<0.002	<SDL	<23.7	<20.3	<17.7	<SDL
LPST facility/W. 34th Street and Lawrence Street/Kims Car Care/old gasoline service station (3210 N. Shepherd Drive)												
SB-4	09/06/13	12-14	<0.001	<0.001	<0.001	<0.006	<0.002	<SDL	<27.7	<23.7	<20.7	<SDL
SB-5	09/06/13	6-8	<0.001	<0.001	<0.001	<0.006	<0.002	<SDL	<27.2	<23.3	<20.3	219.2
SB-12	09/06/13	2-4	<0.001	<0.001	<0.001	<0.006	<0.002	<SDL	<27.5	<23.5	<20.5	<SDL

Notes:

1. PCLs indicates TRRP Tier 1 Tables protective concentration limits.
2. TRRP Tier 1 PCLs ($^{Tot}Soil_{Comb}$) indicates the PCLs for the combined soil exposure pathways (Residential, 0.5-acre site).
3. TRRP Tier 1 PCLs ($^{GW}Soil_{Ing}$) indicates the PCLs for the leaching of soil concentrations into groundwater (Residential, 0.5-acre site).
4. Analyses by the following methods: BTEX - EPA Method SW846-8021B; TPH - Texas Method 1005.
5. Detections are provided in bold font.
6. NA indicates Not Applicable, or Not Available.
7. <SDL indicates less than or below sample detection limit (SDL).

APPENDIX A

Soil Boring Logs

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-1 **TEMP. WELL NUMBER :** _____

FACILITY ADDRESS: Randall Street / Nearby 3209 N. Shepherd Drive

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 10:24-10:43.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
			Ground Surface			
0	0.0			Fill	Asphalt (6") Fill; Gravel and reddish-brown sandy clay and sand, moist (surface to 1.7-feet)	
	0.0					
	0.0			CL	Sandy Clay; Brown and reddish-orange sandy clay, fines, soft, moist (1.7 feet to 12 feet)	
5	0.0					
	0.0					
10	0.0	X				SB-1 @ 10-12'; 10:29, 1-4 oz
	0.0			SM	Sand and clayey sand; Yellowish-brown (beige) sand and cleyey sand, moist (12-15 feet)	
15	0.0					
20					Total Depth = 15 ft Note: No groundwater encountered to 15 feet. Concrete coring completed on 09/03/13. No odor.	
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

SHEET 1 OF 1

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-2 TEMP. WELL NUMBER :

FACILITY ADDRESS: Randall Street / Nearby 3209 N. Shephere Drive

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 9:58-10:20.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
0			Ground Surface	Fill	Fill; Gravel and topsoil (2")	
	0.0					
	0.0					
5	0.0			CL	Sandy Clay; Brown, reddish-orange and light gray sandy clay, fines, soft, moist (2 inches to 12 feet)	SB-2 @ 6-8'; 10:11, 1-4 oz
	0.0					
	0.0					
10	0.0					
	0.0			SM	Sand and clayey sand; Yellowish-brown (beige) sand and cleyey sand, moist (12-15 feet)	
15	0.0					
					Total Depth = 15 ft	
					Note: No groundwater encountered to 15 feet. No odor.	
20						
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-3 **TEMP. WELL NUMBER :** _____

FACILITY ADDRESS: Randall Street / Nearby 3209 N. Shepherd Drive

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 9:22-9:47.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
0	0.0		Ground Surface	Fill	Fill; Gravel and topsoil (2")	
5	0.0			CL	Sandy Clay; Brown, reddish-orange and light gray sandy clay, fines, soft, moist (2 inches to 15 feet)	
10	0.0					
15	0.0			CL	Sandy Clay; Brown and light gray sandy clay, fines, soft, moist with sand lenses (10-15 feet)	SB-3 @ 12-14'; 9:46, 1-4 oz
20					Total Depth = 15 ft Note: No groundwater encountered to 15 feet. No odor.	
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

SHEET 1 OF 1

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

FACILITY ADDRESS: West 34th Street / Adjoining 3210 N. Shepherd Drive

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-4 TEMP. WELL NUMBER : _____

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 12:25-12:44.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
			Ground Surface			
0	0.0			Fill	Concrete (9") Fill; Gravel and reddish-brown sandy clay and sand, moist (surface to 2 feet)	
5	0.0 0.0 0.0			CL	Sandy Clay; Brown and reddish-orange sandy clay, fines, soft, moist (2 to 12 feet)	
10	0.0 0.0					
15	0.3 0.3			SM	Sand and clayey sand; Yellowish-brown (beige) sand and cleyey sand, moist (12-15 feet)	SB-4 @ 12-14'; 12:45, 1-4 oz
20					Total Depth = 15 ft Note: No groundwater encountered to 15 feet. Concrete coring completed on 09/03/13. Slight hydrocarbon odor at 12-15 feet.	
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-5 TEMP. WELL NUMBER : _____

FACILITY ADDRESS: West 34th Street / Adjacent to 3210 N. Shepherd Drive

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 11:22-11:45.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
0	0.0		Ground Surface	Fill	Fill; Gravel and reddish-brown/brown sandy clay and sand, moist (surface to 2 feet)	
	0.0				Sand and clayey sand; Brown sand and cleyey sand, moist (2-4 feet)	
5	0.0			CL	Sandy Clay; Light brown sandy clay, fines, soft, moist with Fe staining (2-12 feet)	SB-5 @ 6-8'; 11:38, 1-4 oz
	0.0					
10	0.0					
	0.0			SM	Sand and clayey sand; Yellowish-brown (beige) sand and cleyey sand, moist (12-15 feet)	
15	0.0					
20					Total Depth = 15 ft Note: No groundwater encountered to 15 feet. No odor.	
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

SHEET 1 OF 1

PROJECT NO: E13-112

SITE NAME: Water Line Replacement ins Shepherd Forest II Area

☒ BOREHOLE ☐ MONITOR WELL

BORING NUMBER : SB-6 TEMP. WELL NUMBER :

FACILITY ADDRESS: West 34th Street / Adjacent to 3210 N. Shepherd Drive

DRILLING COMPANY / METHOD / RIG: Johnson Drilling/Truck-mounted hydraulically-driven drill rig with split spoons

DRILLER: B. Johnson **DATE: (START / FINISH)** 09/06/2013 @ 11:45-12:12.

LOGGED BY: T. Murphy **TOP OF CASING ELEVATION:** N/Appl.

DEPTH	PID	SAMPLE INTERVAL	STRATIGRAPHY	USCS	SOIL DESCRIPTION AND COMMENT (CLASSIFICATION, GRAIN SIZE, COLOR, MOISTURE, ODOR, OTHER)	NOTES
0	0.0		Ground Surface	Fill	Fill; Gravel and reddish-brown/brown sandy clay and sand, moist (surface to 2 feet)	SB-6 @ 2-4'; 11:38, 1-4 oz
	0.0				Sand and clayey sand; Brown sand and cleyey sand, moist (2-4 feet)	
5	0.0			CL	Sandy Clay; Light brown and light gray sandy clay, fines, soft, moist with Fe staining (2-12 feet)	
	0.0					
	0.0					
10	0.0					
	0.0			SM	Sand and clayey sand; Yellowish-brown (beige) sand and cleyey sand, moist (12-15 feet)	
15	0.0					
					Total Depth = 15 ft	
					Note: No groundwater encountered to 15 feet. No odor.	
20						
25						
30						
35						
40						
45						

FILTER SAND | BENTONITE SEAL | GROUT / CONCRETE SURFACE | ▼ WATER ENCOUNTERED

A T L **Associated Testing Laboratories, Inc.**

TOTAL DEPTH: 15'

SEAL MATERIAL: (TYPE/INTERVAL) Bentonite to surface

SURFACE COMPLETION: ☐ FLUSH W/CONCRETE ☐ RISER W/CONCRETE

APPENDIX B

Laboratory Analytical Results

Laboratory Analysis Report

Total Number of Pages: 25

Job ID : 13090229

10100 East Freeway, Suite 100, Houston, TX 77029 tel: 713-453-6060, fax: 713-453-6091, http://www.ablabs.com

Client Project Name :
E13-112 / WLR in Shepherd Forest II Area

Report To :

Client Name: Associated Testing Lab
Attn: Tom Murphy
Client Address: 3143 Yellowstone Blvd.
City, State, Zip: Houston, Texas, 77054

P.O.#.:
Sample Collected By: Tom Murphy
Date Collected: 09/06/13

A&B Labs has analyzed the following samples...

Client Sample ID	Matrix	A&B Sample ID
SB-1 @ 10-12'	Soil	13090229.01
SB-2 @ 6-8'	Soil	13090229.02
SB-3 @ 12-14'	Soil	13090229.03
SB-4 @ 12-14'	Soil	13090229.04
SB-5 @ 6-8'	Soil	13090229.05
SB-6 @ 2-4'	Soil	13090229.06

Alisha Hughes

Released By: Alisha Hughes
Title: PM
Date: 9/17/2013

This Laboratory is NELAP (T104704213-13-8) accredited. Effective: 04/01/2013; Expires: 03/31/2014
Scope: Non-Potable Water, Drinking Water, Air, Solid, Hazardous Waste

I am the laboratory manager, or his/her designee, and I am responsible for the release of this data package. This laboratory data package has been reviewed and is complete and technically compliant with the requirements of the methods used, except where noted in the attached exception reports. I affirm, to the best of my knowledge that all problems/anomalies observed by this laboratory (and if applicable, any and all laboratories subcontracted through this laboratory) that might affect the quality of the data, have been identified in the Laboratory Review Checklist, and that no information or data have been knowingly withheld that would affect the quality of the data.

Date Received : 09/06/2013 13:25

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-1 @ 10-12'
A&B Job Sample ID: 13090229.01

Date: 9/17/2013

Client Name:	Associated Testing Lab
Project Name:	E13-112 / WLR in Shepherd Forest II Area

Attn: Tom Murphy

Test Description:	**% Moisture**	Sample Matrix	Soil
Analytical Method:	SM 2540G	Date Collected	09/06/2013 10:29
QC Batch ID:	Qb13091163	Date Received	09/06/2013 13:25
Prep Method:	SM 2540G	Date Prepared	09/11/2013 15:00
Prepared By:	Ajohn		
Prep Batch ID	PB13091156		
Analyst Initial	AJ	% Moisture	10.1

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
	% Moisture[1]	10.1				----	----	%	1	09/11/13 15:10

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-1 @ 10-12'
A&B Job Sample ID: 13090229.01

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Purgeable Aromatics**	Sample Matrix	Soil
Analytical Method:	SW-846 8021B	Date Collected	09/06/2013 10:29
QC Batch ID:	Qb13091026	Date Received	09/06/2013 13:25
Prep Method:	SW-846 5035A	Date Prepared	09/06/2013 14:00
Prepared By:	SBojja		
Prep Batch ID	PB13091018		
Analyst Initial	SRB	% Moisture	10.1

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 18:32
71-43-2	Benzene	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 18:32
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 18:32
100-41-4	Ethylbenzene	< 0.006	U	0.006	0.005	0.005	0.4	mg/Kg	1.01	09/06/13 18:32
108-38-3&106-4	m- & p-Xylenes	< 0.006	U	0.006	0.005	0.01	0.8	mg/Kg	1.01	09/06/13 18:32
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	1.01	09/06/13 18:32
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	1.01	09/06/13 18:32
98-08-8	Trifluorotoluene(surr)	102				81	111	%	1.01	09/06/13 18:32

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-1 @ 10-12'
A&B Job Sample ID: 13090229.01

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Total Petroleum Hydrocarbons**	Sample Matrix	Soil
Analytical Method:	TX 1005	Date Collected	09/06/2013 10:29
QC Batch ID:	Qb13091051	Date Received	09/06/2013 13:25
Prep Method:	TX 1005	Date Prepared	09/09/2013 17:45
Prepared By:	AVBembde		
Prep Batch ID	PB13091034		
Analyst Initial	AVB	% Moisture	10.1

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 26.4	Q18,U	26.4	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 22.6	U	22.6	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 19.7	U	19.7	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<26.4				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	73				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	77.9				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-2 @ 6-8'
A&B Job Sample ID: 13090229.02

Date: 9/17/2013

Client Name:	Associated Testing Lab
Project Name:	E13-112 / WLR in Shepherd Forest II Area

Attn: Tom Murphy

Test Description:	**% Moisture**	Sample Matrix	Soil
Analytical Method:	SM 2540G	Date Collected	09/06/2013 10:11
QC Batch ID:	Qb13091163	Date Received	09/06/2013 13:25
Prep Method:	SM 2540G	Date Prepared	09/11/2013 15:00
Prepared By:	Ajohn		
Prep Batch ID	PB13091156		
Analyst Initial	AJ	% Moisture	10.2

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
	% Moisture[1]	10.2				----	----	%	1	09/11/13 15:10

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-2 @ 6-8'
A&B Job Sample ID: 13090229.02

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Purgeable Aromatics**	Sample Matrix	Soil
Analytical Method:	SW-846 8021B	Date Collected	09/06/2013 10:11
QC Batch ID:	Qb13091026	Date Received	09/06/2013 13:25
Prep Method:	SW-846 5035A	Date Prepared	09/06/2013 14:00
Prepared By:	SBojja		
Prep Batch ID	PB13091018		
Analyst Initial	SRB	% Moisture	10.2

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.98	09/06/13 19:24
71-43-2	Benzene	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	0.98	09/06/13 19:24
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.98	09/06/13 19:24
100-41-4	Ethylbenzene	< 0.005	U	0.005	0.005	0.005	0.4	mg/Kg	0.98	09/06/13 19:24
108-38-3&106-4	m- & p-Xylenes	< 0.005	U	0.005	0.005	0.01	0.8	mg/Kg	0.98	09/06/13 19:24
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	0.98	09/06/13 19:24
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	0.98	09/06/13 19:24
98-08-8	Trifluorotoluene(surr)	96.5				81	111	%	0.98	09/06/13 19:24

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-2 @ 6-8'
A&B Job Sample ID: 13090229.02
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Total Petroleum Hydrocarbons**	Sample Matrix	Soil
Analytical Method:	TX 1005	Date Collected	09/06/2013 10:11
QC Batch ID:	Qb13091051	Date Received	09/06/2013 13:25
Prep Method:	TX 1005	Date Prepared	09/09/2013 17:45
Prepared By:	AVBembde		
Prep Batch ID	PB13091034		
Analyst Initial	AVB	% Moisture	10.2

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 26.4	Q18,U	26.4	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 22.6	U	22.6	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 19.7	U	19.7	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<26.4				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	70.7				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	77.1				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-3 @ 12-14'
A&B Job Sample ID: 13090229.03

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description: **Purgeable Aromatics**
Analytical Method: SW-846 8021B
QC Batch ID: Qb13091026
Prep Method: SW-846 5035A
Prepared By: SBojja
Prep Batch ID PB13091018
Analyst Initial SRB

Sample Matrix Soil
Date Collected 09/06/2013 09:46
Date Received 09/06/2013 13:25
Date Prepared 09/06/2013 14:00
% Moisture

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 19:50
71-43-2	Benzene	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 19:50
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.01	09/06/13 19:50
100-41-4	Ethylbenzene	< 0.005	U	0.005	0.005	0.005	0.4	mg/Kg	1.01	09/06/13 19:50
108-38-3&106-4	m- & p-Xylenes	< 0.005	U	0.005	0.005	0.01	0.8	mg/Kg	1.01	09/06/13 19:50
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	1.01	09/06/13 19:50
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	1.01	09/06/13 19:50
98-08-8	Trifluorotoluene(surr)	98				81	111	%	1.01	09/06/13 19:50

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-3 @ 12-14'
A&B Job Sample ID: 13090229.03

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description: **Total Petroleum Hydrocarbons**
Analytical Method: TX 1005
QC Batch ID: Qb13091051
Prep Method: TX 1005
Prepared By: AVBembde
Prep Batch ID PB13091034
Analyst Initial AVB

Sample Matrix Soil
Date Collected 09/06/2013 09:46
Date Received 09/06/2013 13:25
Date Prepared 09/09/2013 17:45
% Moisture

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 23.7	Q18,U	23.7	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 20.3	U	20.3	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 17.7	U	17.7	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<23.7				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	67.7				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	72.1				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-4 @ 12-14'
A&B Job Sample ID: 13090229.04

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**% Moisture**	Sample Matrix	Soil
Analytical Method:	SM 2540G	Date Collected	09/06/2013 12:45
QC Batch ID:	Qb13091163	Date Received	09/06/2013 13:25
Prep Method:	SM 2540G	Date Prepared	09/11/2013 15:00
Prepared By:	Ajohn		
Prep Batch ID	PB13091156		
Analyst Initial	AJ	% Moisture	14.5

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
	% Moisture[1]	14.5				----	----	%	1	09/11/13 15:10

Soil results reported on dry weight basis

LABORATORY TEST RESULTS---TRRP13

Client Sample ID: SB-4 @ 12-14'
A&B Job Sample ID: 13090229.04
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Purgeable Aromatics**	Sample Matrix	Soil
Analytical Method:	SW-846 8021B	Date Collected	09/06/2013 12:45
QC Batch ID:	Qb13091060	Date Received	09/06/2013 13:25
Prep Method:	SW-846 5035A	Date Prepared	09/06/2013 14:00
Prepared By:	SBojja		
Prep Batch ID	PB13091036		
Analyst Initial	SRB	% Moisture	14.5

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:37
71-43-2	Benzene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:37
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:37
100-41-4	Ethylbenzene	< 0.006	U	0.006	0.005	0.005	0.4	mg/Kg	0.99	09/07/13 03:37
108-38-3&106-4	m- & p-Xylenes	< 0.006	U	0.006	0.005	0.01	0.8	mg/Kg	0.99	09/07/13 03:37
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	0.99	09/07/13 03:37
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	0.99	09/07/13 03:37
98-08-8	Trifluorotoluene(surr)	98.5				81	111	%	0.99	09/07/13 03:37

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-4 @ 12-14'
A&B Job Sample ID: 13090229.04
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description: **Total Petroleum Hydrocarbons**
Analytical Method: TX 1005
QC Batch ID: Qb13091051
Prep Method: TX 1005
Prepared By: AVBembde
Prep Batch ID PB13091034
Analyst Initial AVB

Sample Matrix Soil
Date Collected 09/06/2013 12:45
Date Received 09/06/2013 13:25
Date Prepared 09/09/2013 17:45
% Moisture 14.5

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 27.7	Q18,U	27.7	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 23.7	U	23.7	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 20.7	U	20.7	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<27.7				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	70.9				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	80.1				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-5 @ 6-8'
A&B Job Sample ID: 13090229.05

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**% Moisture**	Sample Matrix	Soil
Analytical Method:	SM 2540G	Date Collected	09/06/2013 11:38
QC Batch ID:	Qb13091163	Date Received	09/06/2013 13:25
Prep Method:	SM 2540G	Date Prepared	09/11/2013 15:00
Prepared By:	Ajohn		
Prep Batch ID	PB13091156		
Analyst Initial	AJ	% Moisture	12.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
	% Moisture[1]	12.8				----	----	%	1	09/11/13 15:10

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-5 @ 6-8'
A&B Job Sample ID: 13090229.05
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Purgeable Aromatics**	Sample Matrix	Soil
Analytical Method:	SW-846 8021B	Date Collected	09/06/2013 11:38
QC Batch ID:	Qb13091060	Date Received	09/06/2013 13:25
Prep Method:	SW-846 5035A	Date Prepared	09/06/2013 14:00
Prepared By:	SBojja		
Prep Batch ID	PB13091036		
Analyst Initial	SRB	% Moisture	12.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:11
71-43-2	Benzene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:11
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	0.99	09/07/13 03:11
100-41-4	Ethylbenzene	< 0.006	U	0.006	0.005	0.005	0.4	mg/Kg	0.99	09/07/13 03:11
108-38-3&106-4	m- & p-Xylenes	< 0.006	U	0.006	0.005	0.01	0.8	mg/Kg	0.99	09/07/13 03:11
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	0.99	09/07/13 03:11
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	0.99	09/07/13 03:11
98-08-8	Trifluorotoluene(surr)	98.5				81	111	%	0.99	09/07/13 03:11

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-5 @ 6-8'
A&B Job Sample ID: 13090229.05

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Total Petroleum Hydrocarbons**	Sample Matrix	Soil
Analytical Method:	TX 1005	Date Collected	09/06/2013 11:38
QC Batch ID:	Qb13091051	Date Received	09/06/2013 13:25
Prep Method:	TX 1005	Date Prepared	09/09/2013 17:45
Prepared By:	AVBembde		
Prep Batch ID	PB13091034		
Analyst Initial	AVB	% Moisture	12.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 27.2	Q18,U	27.2	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 23.3	U	23.3	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 20.3	U	20.3	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<27.2				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	71.7				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	76.2				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

LABORATORY TEST RESULTS---TRRP13

Client Sample ID: SB-6 @ 2-4'
A&B Job Sample ID: 13090229.06

Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**% Moisture**	Sample Matrix	Soil
Analytical Method:	SM 2540G	Date Collected	09/06/2013 11:47
QC Batch ID:	Qb13091163	Date Received	09/06/2013 13:25
Prep Method:	SM 2540G	Date Prepared	09/11/2013 15:00
Prepared By:	Ajohn		
Prep Batch ID	PB13091156		
Analyst Initial	AJ	% Moisture	13.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
	% Moisture[1]	13.8				----	----	%	1	09/11/13 15:10

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-6 @ 2-4'
A&B Job Sample ID: 13090229.06
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Purgeable Aromatics**	Sample Matrix	Soil
Analytical Method:	SW-846 8021B	Date Collected	09/06/2013 11:47
QC Batch ID:	Qb13091060	Date Received	09/06/2013 13:25
Prep Method:	SW-846 5035A	Date Prepared	09/06/2013 14:00
Prepared By:	SBojja		
Prep Batch ID	PB13091036		
Analyst Initial	SRB	% Moisture	13.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
1634-04-4	MTBE	< 0.001	Q18,U	0.001	0.001	0.005	0.4	mg/Kg	1.02	09/07/13 02:45
71-43-2	Benzene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.02	09/07/13 02:45
108-88-3	Toluene	< 0.001	U	0.001	0.001	0.005	0.4	mg/Kg	1.02	09/07/13 02:45
100-41-4	Ethylbenzene	< 0.006	U	0.006	0.005	0.005	0.4	mg/Kg	1.02	09/07/13 02:45
108-38-3&106-4	m- & p-Xylenes	< 0.006	U	0.006	0.005	0.01	0.8	mg/Kg	1.02	09/07/13 02:45
95-47-6	o-Xylene	< 0.002	U	0.002	0.002	0.005	0.4	mg/Kg	1.02	09/07/13 02:45
1330-20-7	Xylenes	< 0.002	U	0.002	0.002	0.005	1.2	mg/Kg	1.02	09/07/13 02:45
98-08-8	Trifluorotoluene(surr)	97				81	111	%	1.02	09/07/13 02:45

Soil results reported on dry weight basis

LABORATORY TEST RESULTS --- TRRP13

Client Sample ID: SB-6 @ 2-4'
A&B Job Sample ID: 13090229.06
Date: 9/17/2013

Client Name: Associated Testing Lab
Attn: Tom Murphy
Project Name: E13-112 / WLR in Shepherd Forest II Area

Test Description:	**Total Petroleum Hydrocarbons**	Sample Matrix	Soil
Analytical Method:	TX 1005	Date Collected	09/06/2013 11:47
QC Batch ID:	Qb13091051	Date Received	09/06/2013 13:25
Prep Method:	TX 1005	Date Prepared	09/09/2013 17:45
Prepared By:	AVBembde		
Prep Batch ID	PB13091034		
Analyst Initial	AVB	% Moisture	13.8

CAS Number	Parameter	Result	Flag	SDL	MDL	MQL	UQL	Units	DF	Date/Time
TPH-1005-1	C6-C12[1]	< 27.5	Q18,U	27.5	23.7	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-2	>C12-C28[1]	< 23.5	U	23.5	20.3	25	1000	mg/Kg	1	09/10/13 09:35
TPH-1005-4	>C28-C35[1]	< 20.5	U	20.5	17.7	25	1000	mg/Kg	1	09/10/13 09:35
	Total C6-C35	<27.5				----	----	mg/Kg	1	09/10/13 09:35
111-85-3	1-Chlorooctane(surr)	78.7				60	143	%	1	09/10/13 09:35
3386-33-2	Chlorooctadecane(surr)	88.5				60	150	%	1	09/10/13 09:35

Soil results reported on dry weight basis

[1]-Parameter not available for accreditation

QUALITY CONTROL CERTIFICATE

Job ID : 13090229 **Date :** 9/17/2013

Analysis : Purgeable Aromatics **Method :** SW-846 8021B **Reporting Units :** mg/Kg

QC Batch ID : Qb13091026 **Created Date :** 09/06/13 **Created By :** SBojja

Samples in This QC Batch : 13090229.01,02,03

Sample Preparation : PB13091018 **Prep Method :** SW-846 5035A **Prep Date :** 09/06/13 14:00 **Prep By :** SBojja

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	MQL	MDL		Qual
MTBE	1634-04-4	< MDL	mg/Kg	1	0.005	0.001		
Benzene	71-43-2	< MDL	mg/Kg	1	0.005	0.001		
Toluene	108-88-3	< MDL	mg/Kg	1	0.005	0.001		
Ethylbenzene	100-41-4	< MDL	mg/Kg	1	0.005	0.005		
m- & p-Xylenes	108-38-3&106-42-3	< MDL	mg/Kg	1	0.01	0.005		
o-Xylene	95-47-6	< MDL	mg/Kg	1	0.005	0.002		
Xylenes	1330-20-7	< MDL	mg/Kg	1	0.005	0.002		
Trifluorotoluene(surr)	98-08-8	99	%	1				

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
MTBE	0.05	0.049	98	0.05	0.051	102	4	20	67.2-132	
Benzene	0.05	0.051	102	0.05	0.051	102	0.0	20	76.2-128	
Toluene	0.05	0.051	102	0.05	0.051	102	0.0	20	74.2-126	
Ethylbenzene	0.05	0.051	102	0.05	0.051	102	0.0	20	79.4-125	
m- & p-Xylenes	0.1	0.103	103	0.1	0.103	103	0.0	20	76.3-126	
o-Xylene	0.05	0.052	104	0.05	0.051	102	1.9	20	77.1-123	
Xylenes	0.15	0.155	103	0.15	0.154	103	0.6	20	77.2-125	

QC Type: MS and MSD
QC Sample ID: 13090205.01

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
MTBE	0.008	0.05	0.063	110	0.05	0.049	82	29.2	26	76-134	R1
Benzene	BRL	0.05	0.06	120	0.05	0.038	84	44.9	19	68-138	R1
Toluene	BRL	0.05	0.054	108	0.05	0.031	62	54.1	19	67-135	M2, R1
Ethylbenzene	BRL	0.05	0.049	98	0.05	0.026	52	61.3	20	71-127	M2, R1
m- & p-Xylenes	BRL	0.1	0.086	86	0.101	0.042	41.6	68.8	27	56-135	M2, R1
o-Xylene	BRL	0.05	0.04	80	0.05	0.019	38	71.2	24	56-134	M2, R1
Xylenes	BRL	0.149	0.126	84.6	0.151	0.061	40.4	69.5	25	59-134	M2, R1

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 13090229 **Date :** 9/17/2013

Analysis : Total Petroleum Hydrocarbons **Method :** TX 1005 **Reporting Units :** mg/Kg

QC Batch ID : Qb13091051 **Created Date :** 09/10/13 **Created By :** AVBembde

Samples in This QC Batch : 13090229.01,02,03,04,05,06

Sample Preparation : PB13091034 **Prep Method :** TX 1005 **Prep Date :** 09/09/13 17:45 **Prep By :** AVBembde

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	MQL	MDL		Qual
C6-C12	TPH-1005-1	< MDL	mg/Kg	1	25	23.7		
>C12-C28	TPH-1005-2	< MDL	mg/Kg	1	25	20.3		
>C28-C35	TPH-1005-4	< MDL	mg/Kg	1	25	17.7		
Total C6-C35		< MDL	mg/Kg	1	----			
Chlorooctadecane(surr)	3386-33-2	77.2	%	1				
1-Chlorooctane(surr)	111-85-3	69.6	%	1				

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
C6-C12	500	487	97.4	500	425	85	13.6	20	75-125	
>C12-C28	500	619	124	500	550	110	11.8	20	75-125	
>C28-C35	500	493	98.6	500	422	84.4	15.5	20	75-125	

QC Type: MS and MSD
QC Sample ID: 13090229.01

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
C6-C12	BRL	500	493	98.6						75-125	
>C12-C28	BRL	500	608	120						75-125	
>C28-C35	BRL	500	438	87.6						75-125	

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 13090229 **Date :** 9/17/2013

Analysis : Purgeable Aromatics **Method :** SW-846 8021B **Reporting Units :** mg/Kg

QC Batch ID : Qb13091060 **Created Date :** 09/06/13 **Created By :** SBojja

Samples in This QC Batch : 13090229.04,05,06

Sample Preparation : PB13091036 **Prep Method :** SW-846 5035A **Prep Date :** 09/06/13 14:00 **Prep By :** SBojja

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	MQL	MDL		Qual
MTBE	1634-04-4	< MDL	mg/Kg	1	0.005	0.001		
Benzene	71-43-2	< MDL	mg/Kg	1	0.005	0.001		
Toluene	108-88-3	< MDL	mg/Kg	1	0.005	0.001		
Ethylbenzene	100-41-4	< MDL	mg/Kg	1	0.005	0.005		
m- & p-Xylenes	108-38-3&106-42-3	< MDL	mg/Kg	1	0.01	0.005		
o-Xylene	95-47-6	< MDL	mg/Kg	1	0.005	0.002		
Xylenes	1330-20-7	< MDL	mg/Kg	1	0.005	0.002		
Trifluorotoluene(surr)	98-08-8	97	%	1				

QC Type: LCS and LCSD

Parameter	LCS Spk Added	LCS Result	LCS % Rec	LCSD Spk Added	LCSD Result	LCSD % Rec	RPD	RPD CtrlLimit	%Recovery CtrlLimit	Qual
MTBE	0.05	0.053	106	0.05	0.047	94	12	20	67.2-132	
Benzene	0.05	0.057	114	0.05	0.049	98	15.1	20	76.2-128	
Toluene	0.05	0.056	112	0.05	0.048	96	15.4	20	74.2-126	
Ethylbenzene	0.05	0.056	112	0.05	0.047	94	17.5	20	79.4-125	
m- & p-Xylenes	0.1	0.111	111	0.1	0.095	95	15.5	20	76.3-126	
o-Xylene	0.05	0.056	112	0.05	0.049	98	13.3	20	77.1-123	
Xylenes	0.15	0.167	111	0.15	0.144	96	14.8	20	77.2-125	

QC Type: MS and MSD
QC Sample ID: 13090229.06

Parameter	Sample Result	MS Spk Added	MS Result	MS % Rec	MSD Spk Added	MSD Result	MSD % Rec	RPD	RPD CtrlLimit	%Rec CtrlLimit	Qual
MTBE	BRL	0.05	0.042	84	0.051	0.041	80.4	2.4	26	76-134	
Benzene	BRL	0.05	0.043	86	0.051	0.042	82.4	2.4	19	68-138	
Toluene	BRL	0.05	0.042	84	0.051	0.041	80.4	2.4	19	67-135	
Ethylbenzene	BRL	0.05	0.042	84	0.051	0.041	80.4	2.4	20	71-127	
m- & p-Xylenes	BRL	0.1	0.082	82	0.103	0.08	77.7	2.5	27	56-135	
o-Xylene	BRL	0.05	0.042	84	0.051	0.042	82.4	0	24	56-134	
Xylenes	BRL	0.149	0.124	83.2	0.154	0.122	79.2	1.6	25	59-134	

Refer to the Definition page for terms.

QUALITY CONTROL CERTIFICATE

Job ID : 13090229 **Date :** 9/17/2013

Analysis : % Moisture **Method :** SM 2540G **Reporting Units :** %

QC Batch ID : Qb13091163 **Created Date :** 09/11/13 **Created By :** Ajohn

Samples in This QC Batch : 13090229.01,02,04,05,06

Sample Preparation : PB13091156 **Prep Method :** SM 2540G **Prep Date :** 09/11/13 15:00 **Prep By :** Ajohn

QC Type: Method Blank

Parameter	CAS #	Result	Units	D.F.	MQL	MDL		Qual
% Moisture		< MDL	%	1	----			

QC Type: Duplicate

QC Sample ID: 13090229.01

Parameter	QCSample Result	Sample Result	Units	RPD	RPD CtrlLimit		Qual
% Moisture	9.99	10.1	%	1.1	20		

Refer to the Definition page for terms.

LABORATORY TERM AND QUALIFIER DEFINITION REPORT

Job ID : 13090229

Date: 9/17/2013

General Term Definition

Back-Wt	Back Weight	Post-Wt	Post Weight
BRL	Below Reporting Limit	ppm	parts per million
cfu	colony-forming units	Pre-Wt	Previous Weight
Conc.	Concentration	Q	Qualifier
D.F.	Dilution Factor	RegLimit	Regulatory Limit
Front-Wt	Front Weight	RPD	Relative Percent Difference
LCS	Laboratory Check Standard	RptLimit	Reporting Limit
LCSD	Laboratory Check Standard Duplicate	SDL	Sample Detection Limit
MS	Matrix Spike	surr	Surrogate
MSD	Matrix Spike Duplicate	T	Time
MW	Molecular Weight	TNTC	Too numerous to count

Qualifier Definition

M2	Matrix Spike and/or Matrix Spike Duplicate recovery is below laboratory control limits due to matrix interference."The sample randomly selected as QC for this batch was not part of your project. Therefore, this sample matrix is not applicable to your project samples."
Q18	Soils not collected in a hermetically sealed container may lose low-level VOCs.
R1	RPD exceeds control limits."The sample randomly selcted as QC for this batch was not part of your project. Therefore, this sample matrix is not applicable to your project samples."
U	Undetected at SDL (Sample Detection Limit).

A & B Labs — Chain of Custody

The Chain of Custody is a Legal Document

Page 1 of 1

10100 East Fwy (I-10)
Suite 100
Houston, TX 77029
713-453-6060
1-877-478-6060 Toll Free
713-453-6091 Fax
ablabs.com

A&B JOB ID # 1309229

5. Project # E13-112

1. REPORT TO:
Company: Associated Testing Lab, Texas
Address: 3143 Yellowstone Blvd
Houston, Tx 77042
Contact: Tom Murphy
Phone: 713.748.3717
Fax: ☐ 713.748.3748
E-mail: ☐ tdm_bcad yahoo.com

2. INVOICE TO:
Company:
Address:
Same
Contact:
Phone:
Fax: ☐
E-mail: ☐

3. PO #
3a. A&B Quote #
4. Turnaround Time (Business Days)
☐ 1 Day* ☐ Other:
☐ 2 Days*
☐ 3 Days* *Surcharge applies
☑ 7 Days - Standard

6. Project Name/Location: WLR in Shepherd Forest II Area

7. Reporting Requirement: Run TCEQ TRRP Tier 1 0.5-Acre PCLs

☑ TRRP Limits only ☐ TRRP Rpt. Package ☐ See Attached ☐ Standard Level II ☐ PST ☐ MDL ☐ EDD

8. Sampler's Name & Company (PLEASE PRINT): Tom Murphy / ATL

Sampler's Signature & Date: 09/06/13

AB USE ONLY	9. Sample ID and Description	10. Sampling Date	10. Sampling Time 24hr	11. Comp.	11. Grab	12. Matrix: Water	Soil	Sludge	Oil	Drinking Water	Air	Other	13. No. of Containers	Analyses/Methods: TPH (Tx1005)	MTBE/BTEX (8021)	18. REMARKS
1A	SB-1 @ 10-12'	09/06/13	1029		X		X						1	X	X	
2A	SB-2 @ 6-8'		1011											X	X	
3A	SB-3 @ 12-14'		946											X	X	
4A	SB-4 @ 12-14'		1245											X	X	
5A	SB-5 @ 6-8'		1138											X	X	
6A	SB-6 @ 2-4'		1147											X	X	

14. Containers*
15. Preservatives**
16. PH-Lab Only
17.

19. RELINQUISHED BY	DATE	TIME	20. RECEIVED BY	DATE	TIME
Murphy	09/06/13	13:58		9.6.13	13:58

21. KNOWN HAZARDS/COMMENTS

Temperature: 2.4 °C
Thermometer ID 102000320
Intact Y or N Initials DL

Containers: VOA - 40 ml vial; A/G - Amber/Glass 1 Liter; 4 oz/8 oz - glass wide mouth; P/O - Plastic/other

**Preservatives: C - Cool; H - HCl; N - HNO_3; S - H_2SO_4; OH - NaOH; T - $NA_2S_2O_3$; X - Other

METHOD OF SHIPMENT

BILL OF LADING/TRACKING #

A&B cannot accept verbal changes
Please FAX written changes to 713-453-6091

Sample Condition Checklist

A&B JobID : **13090229**	Date Received : **09/06/2013**	Time Received : **1:25PM**
Client Name : **Associated Testing Lab**		
Temperature : **2.4°C**	Sample pH : **N/A**	
Thermometer ID : **102002320**	pH Paper ID : **N/A**	

	Check Points	Yes	No	N/A
1.	**Cooler seal present and signed.**		X	
2.	**Sample(s) in a cooler.**	X		
3.	**If yes, ice in cooler.**	X		
4.	**Sample(s) received with chain-of-custody.**	X		
5.	**C-O-C signed and dated.**	X		
6.	**Sample(s) received with signed sample custody seal.**		X	
7.	**Sample containers arrived intact. (If no comment).**	X		
8.	**Matrix :** **Water** ☐ **Soil** ☑ **Liquid** ☐ **Sludge** ☐ **Solid** ☐ **Cassette** ☐ **Tube** ☐ **Bulk** ☐ **Badge** ☐ **Food** ☐ **Other** ☐			
9.	**Sample(s) were received in appropriate container(s).**	X		
10.	**Sample(s) were received with proper preservative**	X		
11.	**All samples were logged or labeled.**	X		
12.	**Sample ID labels match C-O-C ID's**	X		
13.	**Bottle count on C-O-C matches bottles found.**	X		
14.	**Sample volume is sufficient for analyses requested.**	X		
15.	**Samples were received within the hold time.**	X		
16.	**VOA vials completely filled.**			X
17.	**Sample accepted.**	X		

Comments : Include actions taken to resolve discrepancies/problem:

Received by : CCripe

Check in by/date : CCripe / 09/06/2013

APPENDIX C

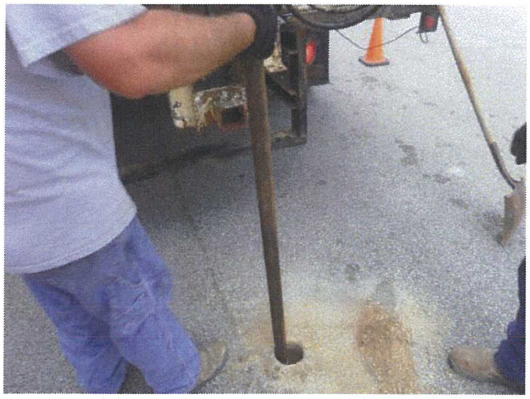
Photographs

View of push drilling activity at soil boring SB-3 (Randall Street).

View of drilling activity at SB-3.

View of drilling activity at SB-2.

Another view of push drilling at SB-2.

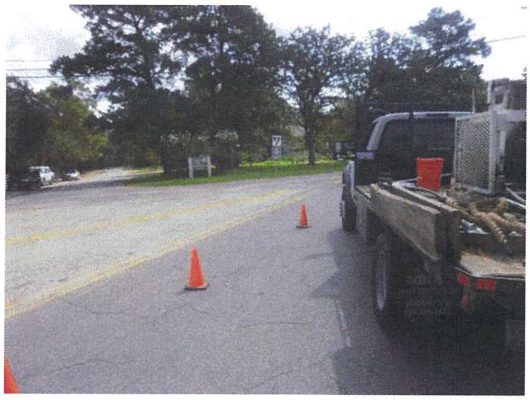


View drilling activity at SB-1.

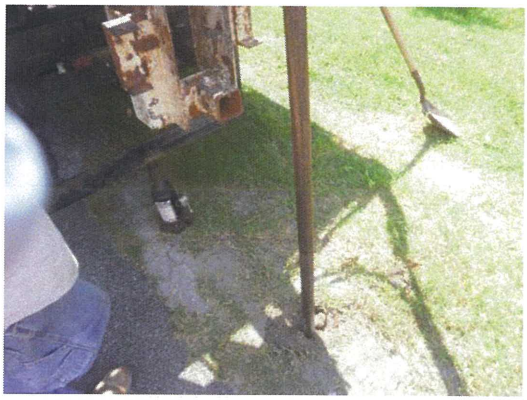
Another view of drilling at soil boring SB-1.

Typical view of decontamination activity.

View of push drilling at soil boring SB-5 (W. 34th/Lawrence Streets).



Another view of drilling activity at SB-5.



View of drilling activity at SB-6.

View of drilling activity at SB-4.

Another view of drilling activity at SB-4.

APPENDIX D

Qualifications of Environmental Professional

TOM MURPHY
PROJECT MANAGER
ENVIRONMENTAL ENGINEERING SERVICES

EDUCATION
Texas State (formerly SWT University): B. S., Geography-Resource and Environmental Studies/Biology, 1993

REGISTRATION/TRAINING
40/8-Hour CFR 1910.120, OSHA Training and Refreshers (HazWop)
40 CFR 265.16, Hazardous Waste Management Certification
49 CFR 172 & 173, DOT Hazardous Materials Training
29 CFR 1919.134, Respirator Fit Test/Training
RRC Rule 36 & API-RP 49, Hydrogen Sulfide Training
ExxonMobil LPS and OIMS Training
Facility, Client or Site-Specific Safety Training and Protocols

PROFESSIONAL EXPERIENCE
Project Manager
Project Geologist/Scientist/Manager
Field Geologist
Bioremedial Field Engineer
Specialization:
Spill response and assessment/remediation to closure
Environmental site assessments
Remediation systems installation and system design
General construction experience
Regulatory and data interpretation
Surveying/mapping/site plans

PROFESSIONAL HISTORY
Berg-Oliver Associates, Inc., Project Manager, November 2004 to present
BNC Environmental Svs., Inc. (successor CRA), Project Geologist/Scientist/Manager, Oct. 2001 to Nov. 2004.
Eco-Systems, Inc., Project Scientist, March 2001 to October 2001.
Self-Employed, Environmental Consultant/Scientist, November 2000 to March 2001.
Associated Environmental Consultants, Inc., Project Manager, August 1995 to November 2000.
Self-Employed, Environmental Consultant, April 1995 to August 1995.
Sybron Chemicals, Inc., Bioremedial Field Engineer, October 1993 to April 1995.

REPRESENTATIVE EXPERIENCE
Mr. Murphy is a senior-level project manager with over 18 years of diverse environmental experience. Mr. Murphy's responsibilities include: project management activities, conducting surface and/or subsurface soil groundwater investigations, Phase II ESAs, Phase IIIs, Affected Property Assessment Reports (APARs), spill response and environmental management, conducting over twenty two hundred Phase I ESAs/due diligence, transaction screens, wetland projects (delineation, nationwide and individual permits), road (new and reconstruction) and infrastructure (waterlines, sanitary and storm sewer) projects and other environmental-related tasks. Experience and preparation of cost proposals, project coordination, health and safety plans and supervisory duties of sub-contractors, bioremedial equipment project design/set-up, various remediation technology projects, equipment and design for treating petroleum-contaminated soil and groundwater, equipment set-up/construction, QA/QC, monitor well advancement, supervision of sampling discharge effluents and storm water, groundwater monitoring, EPA/TCEQ & RRC protocol, expediting projects, treatability studies and contaminant plume mapping. He has project experience in field assessments and remediation projects for banks, developers, brokers, institutions, companies, corporations, engineering firms/government entities (city of Houston, HCPID-AED and other cities) and the Texas Commission on Environmental Quality Leaking Petroleum Storage Tank (LPST) RPR Division. Mr. Murphy excels in the application of technical knowledge, site-specific factors, data analysis, report preparation to

existing and potential clients. Knowledgeable in government environmental acts and regulations. Representative projects include:

- Performed numerous Subsurface Investigations and Phase I-Environmental Site Assessments for various clients to determine the presence or absence of adverse environmental conditions.
- Conducting spill response activities and delineations predominantly for pipeline-related enterprises and bulk storage facilities inclusive of: air monitoring, subcontractor supervision, excavation and over-excavation, sampling, waste disposal (waste profiling/characterization, transportation and disposal) and closure under Railroad Commission of Texas or TCEQ. Representative clients:
  - ExxonMobil Pipeline Co. (EMPCo.)
  - BP Pipelines North America (NA), Inc.
  - Valero Logistics Operations, L.P.
  - Kinder Morgan
  - Shell Oil Products US, Equiva, Motiva and Equilon
  - TEPPCO
- Prepared a pilot project leading to a contracted waste water line build-up treatment plan, technical documents, cost proposal for the City of Houston (waste water line bioremedation).
- Conducted numerous new road, road reconstruction, waterlines, sanitary sewer, storm sewer projects and Limited Environmental Assessment projects for the City of Houston Public Works and Engineering Department, Harris County Public Infrastructure Department-Architecture and Engineering Division and Engineering Firms and other numerous linear projects (TxDOT (State CE, CE and support for LEAs).
- LPST remediation equipment set-up and design, petroleum contaminant reduction, TCEQ approved closure of several LPST sites and supervision of LPST sites
- Experience in all phases of construction including bioremedial equipment installation, sampling protocol of water and/or soils, and closure of site. Field Engineer for numerous site assessments throughout the Gulf Coast region. Construction of bioremediation systems to convert pump and treat contaminated ground water including recovery/treatment/microbe and nutrient injection systems. Projects:
  - Houston Lighting & Power-Spring Branch, Houston, bioreactor system; and
  - Wilburforce Road, Houston-First Interstate (successor Wells Fargo Bank), bioreactor.
- Field experience with soil injection, bioreactors, air strippers, and vacuum heaps and air sparging to treat soil/groundwater contaminants. Field Engineer for various remediation projects of oil and petroleum-contaminated soils. Field experience in soil vapor extraction equipment (SVE) including a specially designed bio-treated fluid separator. Constructed a vapor extraction system with a biological scrubber to extend carbon polishing efficiency and/or the potential for breakthrough or fugitive releases, and reduction of overall total emissions. System also included method to remove groundwater from vapor extraction wells, which tended to accumulate due to excessive rainfall and shallow groundwater effects. Constructed, maintained and operated landfarms for various clients. Provided technical and consulting services during the operation of the landfarm, including biological health analyses sampling, data interpretation, report presentation and closure. Other Environmental Projects:
  - Numerous due diligence assessments and affected property assessments for various clients
  - Non-producing "old oilfield" asset assessments (Chevron Environmental Management Company and Chevron Business and Real Estate Services)
  - Several States, Monitoring and assessments of natural gas compressor stations (El Paso Energy Corporation-Tennessee Gas Pipeline and Southern Natural Gas)
  - Texas – Hydrostatic water treatment projects
  - Texas – Wastewater permitting and discharge analyses (Williams Energy-Williams Gas Pipeline and EMPCo.)
  - Numerous crude oil and refined product spill delineations
  - Texas City, Texas – BP-Amoco pipeline release assessment affecting sanitary sewer system

- Texas – Assessments of Shell Oil Products US and related enterprises-Equiva, Motiva and Equilon
- Pasadena, Texas – Kinder Morgan Texas Pipeline, Assessment to evaluate off-site source of corrosion to pipeline
- Remediation and landfarms (Chevron Environmental Management Co., First Interstate (successor Wells Fargo Bank), Kinder Morgan, Genesis Crude Oil, L.P., Valero Logistics Operations, L.P., TEPPCO, Specialty Lubricants and Commercial Metals)
- Angleton, Texas – First Interstate (successor Wells Fargo Bank), specialty soil vapor extraction system
- Rockport and Marshall, Texas-First Interstate (successor Wells Fargo Bank), vacuum heap/augmented with automated microbial/nutrient additive system

- Administrative duties, supervision, cost proposals, report preparation, regulatory document preparation, client project status reports. Supervision and field experience in soil boring/monitor well drilling advancement, logging, decommissioning and soil sampling criteria. Installation of numerous soil borings and groundwater monitoring wells at various sites.

- Field experience in groundwater monitoring, low flow sampling, flow interpretation, and contaminant plume mapping. Experience in a variety of mapping, site plan creation/surveying, geographic information systems, regulatory databases and land-use planning.

- Performed over twenty-two hundred Phase I Site Assessments, Categorical Exclusions and Limited Environmental Assessments for various clients including oil companies (Chevron Environmental Management Co., ChevronTexaco Business and Real Estate Services, Shell Oil Products US, Weatherford International, Inc., EMPCo., etc.) banks, lending agencies, private individuals and/or businesses and corporations, engineering firms, Texas Department of Transportation, City of Houston Department of Public Works and Engineering and Harris County Public Infrastructure Department-Architecture and Engineering Division. Performed site assessments on all types of properties and facilities including vacant and developing properties, office buildings, office/warehouses, machine shops, and industrial properties. Performed PCS PrimeCo., Sprint, NEXTEL, and American Tower Company pad site assessments. Project Budgets $2,500-$5,500: Locations: Texas, Louisiana, North Carolina, Ohio, Virginia, West Virginia

- Performed and managed various site clean-ups (hazardous and non-hazardous materials/items). Sampling events of abandoned drums and containers with unidentified substances, laboratory supervision, obtaining waste codes, arranging pick-up by certified waste hauling enterprises and appropriate final disposal activities.

ASSOCIATIONS AND ORGANIZATIONS

The Society of Texas Environmental Professionals
National Association of Environmental Professionals (in-active)